

TITLE OF THE INVENTION

GRILL UNIT AND COOKING APPARATUS WITH THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Korean Application No. 2003-7560, filed February 6, 2003, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present invention relates, in general, to a grill unit and cooking apparatus with the same and, more particularly, to a grill unit and cooking apparatus with the same, which prevents grill pipes from overheating and improves cooking efficiency.

2. Description of the Related Art

[0003] Generally, it is well known that meat or processed meat, such as sausage, is most delicious when grilled. Therefore, persons enjoy cooking meat or processed meat using a cooking apparatus with a grill unit and eating the cooked meat or processed meat.

[0004] The cooking apparatus for this kind of cooking includes a heating unit for directly applying heat to food, and a grill unit mounted on top of the heating unit to support food while spacing the food apart from the heating unit. This structure allows food put on the grill unit to be heated by heat transferred from the heating unit. However, when cooking is performed using the cooking apparatus equipped with a grill unit, high temperature heat is directly transferred from the heating unit to the grill unit, so the part of food in contact with the grill unit easily burns, thus deteriorating the taste of the food and negatively affecting the health of those eating the burned food. Also, water contained in the grill pipes of the grill unit is easily heated by the heating unit, and noise is generated when water vapor generated in the grill pipes is discharged to water tanks of the grill unit.

SUMMARY OF THE INVENTION

[0005] It is an aspect of the present invention to provide a grill unit and cooking apparatus with the same, in which a width of each of the grill pipes is sufficiently narrow so that heat may be easily transferred to food from a heating unit arranged below the grill pipes, and the amount of water contained in the grill pipes is sufficiently maintained to prevent the grill pipes from overheating.

[0006] Additional aspects and/or advantages of the invention will be set forth in part in the description that follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

[0007] To achieve the above and/or other aspects of the present invention, there is provided a grill unit including a plurality of grill pipes; and water tanks respectively connected to ends of the grill pipes to supply water into the grill pipes, wherein a height of a cross-section of each of the grill pipes is greater than a width thereof.

[0008] The height of the cross-section of each of the grill pipes is about 1.2 to about 2.0 times the width thereof.

[0009] The distance between neighboring grill pipes is about 3.0 to about 6.0 times the width of the cross-section of each of the grill pipes.

[0010] To achieve the above and/or other aspects of the present invention, there is provided a cooking apparatus, including a cabinet having at least one heater; and a grill unit mounted on a top surface of the cabinet to support food, the grill unit including a plurality of grill pipes, and water tanks respectively connected to ends of the grill pipes to supply water into the grill pipes, wherein a height of a cross-section of each of the grill pipes is greater than a width thereof to circulate the water in the grill pipes while preventing the water from overheating, thereby reducing an amount of water vapor formed in the grill pipes and reducing noise generated as the water vapor is discharged to the water tanks.

[0011] These, together with other aspects and/or advantages that will be subsequently apparent, reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part thereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] These and/or other aspects and advantages of the invention will become apparent and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with the accompanying drawings, of which:

FIG. 1 is an exploded perspective view of a cooking apparatus with a grill unit, according to the present invention;

FIG. 2 is a sectional view showing the construction of the grill unit of the present invention;

FIG. 3 is a perspective view showing the construction and arrangement of grill pipes of the grill unit of the present invention; and

FIG. 4 is a detailed perspective view showing the construction of the grill pipes of the grill unit of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] Hereinafter, an embodiment of the present invention will be described in detail with reference to the attached drawings, wherein the like reference numerals refer to the like elements throughout. The present invention may, however, be embodied in many different forms and should not be construed as being limited to the embodiment set forth herein; rather, this embodiment is provided so that the present disclosure will be thorough and complete, and will fully convey the concept of the invention to those skilled in the art.

[0014] As shown in FIG. 1, a cooking apparatus with a grill unit according to the present invention includes a cabinet 10 formed in a box shape, and a grill unit 20 mounted on a top of the cabinet 10 to grill food put on the grill unit 20. Further, the cooking apparatus includes a plurality of heaters 11 mounted in the cabinet 10 to heat food put on the grill unit 20, a heat reflecting member 30 that guides the heat from the heaters 11 to the food on the grill unit 20 and collects oil dripping from the food, and a cover member 40 that covers the upper portion of the grill unit 20 and has a plurality of holes 41 and 42 perforated therethrough.

[0015] The cabinet 10 has an opening 12 formed in the top thereof to allow heat generated by the heaters 11 mounted in the cabinet 10 to be transferred to the grill unit 20. Grill seats 13, each with a predetermined area, are formed on both sides of the top surface of the cabinet 10 around the opening 12 to allow the grill unit 20 to be seated thereon. Further, a timer switch 14 and a power switch 15 are provided at a certain portion of a top surface of the cabinet 10 to

control the heating time and the heating temperature of the heaters 11, respectively. An opening 16 is formed in a lower portion of the front of the cabinet 10 so that the heat reflecting member 30 may be moved into and out of the cabinet 10 through the opening 16, similar to the operation of a drawer.

[0016] The heaters 11 are set within both sides of the cabinet 10, that is, below the grill seats 13, to heat food put on the grill unit 20, and are inclined at a predetermined angle such that heating surfaces of the heaters 11 face the opening 12 formed in the top of the cabinet 10. The heaters 11 each include a ceramic member in which heating elements are encapsulated to generate infrared rays with a high temperature. However, the heaters 11 may be implemented as gas heaters using gas, or as trays for holding charcoal.

[0017] The heat reflecting member 30 is constructed such that its axial center portion is projected upward to form a hill shape with a triangular cross-section, and both projected surfaces form reflecting surfaces 31 to allow heat generated by the heaters 11 to be reflected to the grill unit 20 arranged above the heaters 11. Further, recesses 32 are formed at bottoms of both projected surfaces to collect oil dripping from food put on the grill unit 20. Further, although not shown in FIG. 1, a predetermined amount of water is contained in the heat reflecting member 30 to prevent the temperatures of the recesses 32 and the reflecting surfaces 31 from increasing excessively, thus preventing oil collected in the recesses 32 from burning or adhering to the recesses 32.

[0018] The grill unit 20 includes a plurality of grill pipes 21 arranged in parallel with each other while being spaced apart from each other, water tanks 22 connected to both ends of the grill pipes 21 to supply water into the grill pipes 21 and provided with bottom surfaces seated on the grill seats 13 of the top surface of the cabinet 10, and covers 23 to selectively open and close upper portions of the water tanks 22.

[0019] As shown in FIGS. 2 and 3, each of the grill pipes 21 has a horizontally extended part 21a on which food is placed. The horizontally extended part 21a is bent to be positioned lower than both ends of each of the grill pipes 21 connected to the water tanks 22 so that the food is positioned near the heaters 11 arranged below the food. That is, each of the grill pipes 21 has two inclined parts 21b downwardly bent at a predetermined angle and extended from end parts connected to the water tanks 22. Each of the grill pipes 21 is bent to be horizontally extended between the inclined parts 21b, so that the horizontally extended part 21a on which the food is placed is lower than the water tanks 20.

[0020] The above-described construction of the grill unit 20 prevents the grill pipes 21 from overheating by allowing water to flow into the grill pipes 21 from the water tanks 22, even though the grill pipes 21 are heated by heat transferred from the heaters 11 arranged below the grill unit 20 when the user grills food, thereby preventing the part of food in contact with the grill pipes 21 from burning.

[0021] As shown in FIGS. 3 and 4, the grill pipes 21 of the grill unit 20 of the present invention are formed such that a height $d1$ of a cross-section of each grill pipe 21 is greater than a width $d2$ thereof. That is, the cross-section of each grill pipe 21 has an oval shape with a height greater than a width thereof.

[0022] The width $d2$ of each of the grill pipes 21 sufficiently narrow is so that heat may be easily transferred to food put on the grill pipes 21 from the heaters 11 positioned below the grill pipes 21, and heat loss due to interception of the heat by the grill pipes 21 is minimized, thus improving cooking efficiency.

[0023] As the width $d2$ of each of the grill pipes 21 is decreased, the height $d1$ of each of the grill pipes 21 is increased to allow a suitable amount of water to fill the grill pipes 21, thus smoothly circulating water contained in the grill pipes 21 while preventing the water from overheating for a short period of time. In this way, the amount of water vapor generated in the grill pipes 21 is reduced, so noise generated when the water vapor is discharged to the water tanks is also reduced.

[0024] As an example, the height $d1$ of the cross-section of each grill pipe 21 is set at about 1.2 to about 2.0 times the width $d2$ thereof. For example, to grill fresh meat or processed meat, the height of each grill pipe 21 may be approximately 5 mm to approximately 8 mm for a width of about 4 mm.

[0025] Further, to easily transfer heat to food placed on the grill pipes 21 from the heaters 11, in one example, a distance L between neighboring grill pipes 21 is set to about 3 to about 6 times the width $d2$ of each grill pipe 21. For example, if the width $d2$ of each grill pipe 21 is approximately 4 mm, the distance L between neighboring grill pipes 21 is approximately 12 mm to approximately 24 mm.

[0026] As is apparent from the above description, the present invention provides a grill unit and a cooking apparatus with the same, in which a height of a cross-section of each grill pipe is greater than a width thereof, so that heat generated from heaters arranged below the grill pipes may be easily transferred to food placed on the grill pipes, thus improving cooking efficiency.

Further, the present invention is advantageous in that, because the height of the cross-section of each grill pipe is relatively large, the amount of water received in the grill pipes is increased compared to conventional grill pipes having equal widths and heights, thus preventing the grill pipes from rapidly overheating and also preventing noise due to water vapor from being generated.

[0027] Although an embodiment of the present invention has been shown and described, it will be appreciated by those skilled in the art that changes may be made in this embodiment without departing from the principles and spirit of the invention, the scope of which is defined in the claims and their equivalents.